

Advancement Handbook for Information Systems Technician (IT)

PREFACE

The purpose of the Advancement Handbook is to help you focus your preparation for Navy-wide advancement-in-rating examinations. The bibliographies (BIBs) together with this handbook form a comprehensive examination study package. Since this handbook provides skill and knowledge components for each paygrade of the Information Systems Technician rating, it helps you concentrate your study on those areas that may be tested. This feature will help you get the most out of your study time.

Each page in Parts 1 through 4 of this Advancement Handbook presents general skill areas, specific skill areas, the knowledge factors associated with each skill area, the pertinent references required to perform each skill, and the types of subject areas that may be covered on the examination. The skill statements are cumulative; that is, you are responsible for the skills for the paygrade you are competing for, your present paygrade, and all paygrades below.

Although this handbook is very comprehensive, it cannot cover all the tasks performed in the rating. As a result, the advancement examinations may contain questions more detailed than described in the *"Exam Expectations"* section of the skill areas.

Remember that advancement competition is keen, so your keys to advancement include not only comprehensive advancement examination study but also sustained superior performance.

Prepared by

Navy Advancement Center Department
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Part 1

Advancement Handbook for IT3

Advancement Handbook for IT3

General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform conversions and calculations of numbering systems; read and interpret alphanumeric coding schemes
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Convert numbering systems (Binary, Hexadecimal, and Octal) • Read and interpret coding schemes • Examine contents of memory address
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Navy Electricity and Electronics Training Series, Module 22, Ch. 4
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about data representation and conversions, reading and interpreting coding schemes, flowcharts, and memory addresses.

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General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Setup, install, and configure all types of computers and peripheral equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Perform System Administrator functions • Set computer time clocks and date calendars • Setup and install peripheral devices • Install and configure extended or expanded memory • Perform equipment configuration changes • Set parameters for computer and peripheral operation • Install serial/parallel devices • Install mass media storage devices • Install communication devices • Install, configure, and setup boards, chips, cables and other devices • Install, configure, and setup operating systems, office suite applications, communication programs, utility programs and other end-user programs • Make CMOS/BIOS configuration changes • Calculate storage requirements for computer systems and data • Calculate memory requirements for computer systems and data • Prepare computer systems for movement and shipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • The Complete PC Upgrade and Maintenance Guide, areas covering "Overview," "System Tear Down and Inspection," "Motherboards," "Bus Slots and I/O cards," "Microprocessors," "Memory," "Input Devices," "Video,"

	<p>“Communications and Networking,” “Audio,” “Drives and Controllers,” “Storage Devices,” and “Building a System.”</p> <ul style="list-style-type: none"> • PC’s for Dummies, areas covering “It Doesn’t Work.”
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the installation, configuration and setup of various software programs and hardware devices and computers, including resource configuration changes, calculations and settings</p>

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General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Start up network processing
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Boot network control servers • Start up and terminate network processing • Perform logon and logoff procedures on a network • Establish data communications with remote computer terminals
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, Chs. "R," "L"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about booting up; starting and terminating network processing, to include logon/logoff procedures; and establishing data communications

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General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Setup and install networks
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Make physical connections to networks• Install network software• Monitor networks
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Novell's Complete Encyclopedia of Networking, areas covering "Management," "Installation of Software and Hardware," and "Connections."
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about network installations, to include making connections, installing software, and monitoring the networks

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General IT Skill Area	SYSTEMS MANAGEMENT
A skill you are expected to perform from the General Skill Area above:	Perform operator maintenance/troubleshooting
Knowledge you should have to perform this skill:	<ul style="list-style-type: none"> • Inspect, repair, and/or replace all computer system peripheral devices, both internal and external. • Reset, restart computer systems and peripheral devices as required • Perform equipment interlock operational checks • Run equipment/system diagnostic tests • Troubleshoot error conditions • Monitor and interpret indicator lights on all components of a computer system • Inspect computer system components • Interpret indicator lights on all components of a computer • Perform systems built-in tests (BITs) • Perform and interpret equipment or diagnostic tests • Troubleshoot error conditions and failures on computer system components • Inspect computer cables • Inspect electrical circuits • Troubleshoot error conditions and failures on computer system components • Inspect computer system components • Monitor hardware status • Run equipment performance checks/utilization reports • Coordinate trouble calls • Write trouble reports

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> • PC's for Dummies, area covering "Things to Try" • The Complete PC Upgrade and Maintenance Guide, areas covering "Maintaining Your System," "Diagnostic Tools," and "Troubleshooting." • RM Training Series, Module 2
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about inspecting, repairing and replacing computer components; devices and accessories; and running, monitoring and interpreting diagnostic and performance checks on equipment, to include troubleshooting.</p>

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General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Manage a Media Library
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Draft procedures and parameters for initialization of storage media • Initialize or format storage media • Certify storage media • Update media library files • Check storage media into and out of media library • Maintain off-site or remote storage for media library backup files • Perform physical inventory of media library • Clean and physically inspect storage media • Verify internal and external labels and security markings on storage media • Verify presence of data on storage media • Copy and verify data from one medium to another • Place load point/end of tape markers on magnetic tapes • Prepare labels for internal or external media • Package media for shipment • Degauss magnetic media • Destroy storage media
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • RM Training Series, Module 2

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on running and managing a media library.</p>
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General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform computer system operator functions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Query system status via console • Perform operational startup of computer systems • Perform operational restart of computer systems • Perform operational recovery of computer systems • Power up and power down all components of a computer system • Perform emergency power down procedures on communications and Automated Information Systems (AIS) equipment • Inspect computer system components • Interpret indicator lights on all components of a computer system • Monitor status of application and system programs • Screen journal logs and console printouts • Document system operating errors • Load or unload storage media into or from media storage devices • Initiate and run batch job processing • Perform system dumps • Monitor computer system transmissions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • PC's for Dummies, areas covering "Taming the Beast," "Common Computer Stuff" • The Complete PC Upgrade and Maintenance Guide, areas covering "Operating Systems Software," "Maintaining Your System"

	<ul style="list-style-type: none"> • RM Training Series, Module 2
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on console operations; power up/down procedures; bootup, restart and recovery procedures; running jobs, documenting and recording procedures; and monitoring system status</p>

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General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Manipulate data and files on computer systems.
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Output data from computer systems • Inspect printed data output • Convert data files • Process data files • Transfer data files • Verify data files • Input data on computer systems
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Inside UNIX, areas Covering “SHELLS,” “Creating and Manipulating Files and Directories,” “Controlling Permission to Files,” “grep and find,” “Extracting Data,” “Redirection and Piping,” and “Sorting and Comparing Files” • Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on file and data manipulation.

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General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain environmental conditions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Inspect operation of environment monitoring equipment • Replace paper and pens in environment monitoring equipment • Maintain/monitor temperature and humidity recording devices
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • RM Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on monitoring and maintaining environmental equipment and conditions.

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General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install/upgrade software on a computer system.
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Load software from CD-ROMs • Load software from diskettes • Load software from a network server • Setup and configure software defaults and parameters • Verify compliance with software licensing • Verify sufficient resources available prior to installation
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • PC's for Dummies, areas covering "Software" • The Complete PC Upgrade and Maintenance Guide, areas covering "Operating Systems Software" • RM Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on software installation, configuration, setup, licensing, and available resources

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General IT Skill Area	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Work with files/directories
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Create system directories • Modify system directories • Delete system directories • Backup system directories • Restore system directories • Create files • Delete files • Modify files • Recover files • Backup files • Restore files • Move/copy files • Append to files • Rename files
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Inside UNIX, areas covering "SHELLS," "Creating and Manipulating Files and Directories," "Controlling Permission to Files," "grep and find," "Extracting Data," "Redirection and Piping," and "Sorting and Comparing Files" • PC's for Dummies, areas covering "Using DOS" • Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on various UNIX commands and utilities

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General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Execute application programs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Perform system dumps • Record computer run times • Perform computer program testing • Diagnose/correct program errors • Log AIS requests • Execute utility programs • Run batch job processes • Execute AIS virus protection of software
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • RM Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on various application, utility, and system programs; software testing; and documentation and virus protection

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General IT <i>Skill Area</i>	TECHNICAL ADMINISTRATION
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform technical administration
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Design or modify report formats as required• Monitor run schedules• Write trouble reports
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on how to design or modify reporting formats as required; monitoring run schedules; and writing trouble reports

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General IT <i>Skill Area</i>	ANALYSIS AND PROGRAMMING
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform computer system analysis and programming
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Interpret system flowcharts• Create batch routines
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about interpreting flowcharts and creating batch routines

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General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Verify/validate access to data/information
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Validate customer authorization to access files • Verify message recipient's identification and security clearance • Safeguard AIS classified material • Maintain Tempest requirements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Department of the Navy Automated Information Systems (AIS) Security (SECNAVINST 5239.3) • Department of the Navy Information Security Program Regulation (SECNAVINST 5510.36)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about AIS security, to include access, authorization, handling, and verification of classified material

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General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer AIS security program
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Report and log AIS security violations • Change safe and cipher combinations • Destroy classified material (Secret and below) • Sanitize site and equipment • Mark classified material • Conduct classified material inventories (Secret and below) • Perform AIS security inspections
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Department of the Navy Automated Information Systems (AIS) Security (SECNAVINST 5239.3) • Department of the Navy Information Security Program Regulation (SECNAVINST 5510.36)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on administering your command security program

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General IT <i>Skill Area</i>	COMMUNICATIONS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Transmit and receive messages via manual and automated systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Establish data communication with remote user manual or automated • Transmit and receive emergency action messages • Troubleshoot communication line problem • Log incoming and outgoing messages • Determine distribution and routing of messages electronically • Process and verify outgoing messages • Process Top Secret (TS), Special Category (SPECAT), and CAVEAT messages • Reproduce and distribute messages • Prepare outgoing messages • Review messages for minimize considerations • Process and draft communications-related messages (COMMSPT, Broadcast-screening request (BSR), Emergency actions message, etc.) • Authentication • Radio telephone procedures • Voice communications • Daily changing call signs • Call signs • Classification • Special Handling messages
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communication Instructions - General (ACP 121 and ACP 121 SUPP 1) • Communications Instructions Teletypewriter (Teleprinter) Procedures

	<p>(ACP127 and ACP 127 SUPP 1)</p> <ul style="list-style-type: none"> • Communications Instructions Distress and Rescue Procedures (ACP 135) • Naval Telecommunications Procedures Navy Super High Frequency Satellite Communications (NTP 2, Section 1, and NTP 2, Section 2) • Naval Telecommunications Procedures Telecommunications Users Manual (NTP 3 and NTP 3, SUPP 1) • Naval Telecommunications Procedures Fleet Communications (NTP 4) • Basic Operational Communications Doctrine (NWP 4 / NWP 06-01) • Naval Warfare Publications Operational Reports (NWP 10-1-10 / NWP 1-03.1)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about validating systems for messages, the correct procedures for processing emergency action messages, logging procedures, determining the distribution and verifying incoming and outgoing messages. Questions will also be asked about processing special handling messages, to include TS, SPECAT CAVEAT messages; preparing and processing communications messages, to include COMMSPOOT, BSRS, services, and tracer's message; what procedures are used when automated system are not available, monitoring message traffic flow and backlogs; processing back-routed outgoing messages; the procedures and time requirements for transmitting and receiving message traffic; and proper format lines of messages, as well as use of authentication system tactical call signs</p>

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General IT <i>Skill Area</i>	MESSAGE CENTER
A <i>skill</i> you are expected to perform from the General Skill Area above:	Maintain files and list. Perform message center operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Prepare, verify and update command guard list • Update message pickup authorization list • Conduct communication publication inventories • Update Naval warfare publications • Maintain communications publications • General Messages file • CIBS • AIGS/CADS • Compile message total • Conduct traffic analysis • Acknowledge receipt of COMMSPOTS, OPTASK • Perform communications guard shifts • Distribution
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communications Instructions – General (ACP 121 and ACP 121 SUPP1) • Telecommunications Users Manual (NTP 3) • U.S. Navy Address Indication Group (AIG) and Collective Address Designator (CAD) Handbook (NTP 3 SUPP1) • Fleet Communications (NTP 4) • The Naval Warfare Publication System (NWP 0 / NWP 1-01) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Radioman Training Series Modules 4 and 5

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: command guard list, message pickup authorization list, communication publication inventories, updating Naval Warfare publications, maintaining communications publications, General Messages file, CIBS, AIGS/CADS, compiling the message total, traffic analysis, distribution, status boards, and publications content.</p>
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General IT <i>Skill Area</i>	FLEET COMMUNICATIONS
A <i>skill</i> you are expected to perform from the General Skill Area above:	<ul style="list-style-type: none"> • Conduct voice network communications and transmission authentication • Monitor communications circuit quality and system status • Activate or deactivate communications circuits • Perform primary power circuit and communications system restorations • Troubleshoot communications system malfunctions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Operations of voice circuits and the associated equipment • Daily changing call signs • Change equipment configuration • Perform primary and casualty power restoration on communications circuits • Set up and use multiplex equipment • Activate and deactivate communications circuits, including fast reaction and overload circuits • Plot positions for antenna assignment • Maintain communications using orderwire • Set EMCON and HERO conditions • Types of systems • Automatic systems ashore/afloat • Fleet broadcast • Guard requirements • Frequencies • Circuit configurations • Message format • Verify broadcast number continuity • Broadcast configurations and equipment • Distress communications

	<ul style="list-style-type: none"> • Ship to shore communications • Troubleshoot communications system malfunctions • Monitor distress and SAR frequencies • Obtain a time tick • Crypto equipment usage
<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> • Allied Call Sign and Address Group System- Instructions and Assignments (ACP 100) • Communications Instructions – General (ACP 121 and ACP 121, SUPP 1) • Communications Instructions-Operating Signals (ACP 131 and ACP 131, SUPP 1) • Communications Instructions- Distress and Rescue Procedures (ACP 135) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • The Naval Warfare Publication System (NWP 0 / NWP 1-01) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Procedures Manual for Over-the-Air Transfer (OTAT) and Over-the-Air Rekey (OTAR) (NAG 16) • Technical Manual for Fleet Multichannel Broadcast System Receive Subsystem (NAVSHIPS E2081-BC-OMI-020) • Navy Satellite Communications Overview: Defense Satellite Communications System (DCSC) (NTP 2 SEC 1) • Radioman Training Series Modules 4 and 5
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: communications equipment; system; authentication, broadcast, call signs, distress communications, teleprinters, setup and use of multiplex equipment; activation and deactivation of communications circuits, including fast reaction and overload circuits; plotting positions for antenna assignment; communications using orderwire; EMCON and HERO conditions; different systems, such as</p>

	ROMEO, ECHO, etc., automatic systems ashore/afloat, Fleet broadcast; guard requirements, frequency selection; circuit configurations, message formatting, verifying broadcast number continuity, broadcast system, ship to shore communications; troubleshooting communications system; Time Tick; and OTAT and OTAR procedures.
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General IT <i>Skill Area</i>	COMMUNICATIONS MEDIA
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform set up and maintenance procedures for antennas, couplers, converters, keyers, multi-couplers, receivers, transmitters, and transceivers
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Set up antenna couplers and multi-couplers • Set up converters and multiplexers • Test multiplexers • Set up keyers • Set up receivers • Set up transmitters and transceivers • Set up emergency distress communications equipment • Change equipment configuration • Perform primary and casualty power restoration • Maintenance and operation of equipment • Rotate and align antennas for optimum reception • Perform antenna assignment selections • Raise and lower antennas • Power calibration • BIT test equipment use • Video teleconferencing transmission equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Shipboard Antenna Systems – Volume 4 (NAVSEA 0967-LP-177-3040) • Technical Manual for Fleet Multichannel Broadcast System Receive Subsystem, (NAVSHIPS E2081-BC-OMI-020) • Introduction to Wave Propagation, Transmission Lines, and Antennas (NEETS Module 10)

	<ul style="list-style-type: none"> • Radio Frequency Communications Principles (NEETS Module 17) • Introduction to Fiber Optics (NEETS Module 24) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • Basic Operational Communications Doctrine Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (OPNAVINST 5100.19) • Ships' Maintenance and Material Management (3-M), Manual (OPNAVINST 4790.4) • Radioman Training Series Modules 4 and 5
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: resistance and continuity checks; low and high impedance; going aloft; type of energy radiated by which antenna; terms associated with the different types of antennas; antenna operations and theory; modulations and keying; frequency shifts; phase shift keying; location of the couplers; stages of radio transmitters and receivers, antenna maintenance, and the purpose of and how to troubleshoot these communications equipments</p>

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General IT <i>Skill Area</i>	RADIO WAVE PROPAGATION
A <i>skill</i> you are expected to perform from the General Skill Area above:	Demonstrate knowledge of electromagnetic theory as it relates to communications equipment and operations.
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Radio wave propagation • Frequencies shift • Frequency ranges • Equipment usage • Antenna theory • Reporting Meaconing, Intrusion, Jamming, and Interference of electromagnetic systems
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Technical Manual for Fleet Multichannel Broadcast System Receive Subsystem, (NAVSHIPS E2081-BC-OMI-020) • Introduction to Wave Propagation, Transmission Lines, and Antennas (NEETS Module 10) • Radio Frequency Communications Principles (NEETS Module 17) • Introduction to Fiber Optics (NEETS Module 24) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Navy Occupational Safety and Health (NAVOSH) Program Manual for Forces Afloat (OPNAVINST 5100.19) • Ships' Maintenance and Material management (3-M) Manual (OPNAVINST

	4790.4)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the following areas; selective frequencies: status boards, parts of the atmosphere; RF and AF components; frequency ranges, VLF, HF, UHF, SHF, EHF frequencies and what they are used for; types of antennas used with each frequency, and terminology.

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General IT <i>Skill Area</i>	COMMUNICATIONS SECURITY MATERIAL SYSTEM (CMS)
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform security procedures in accordance with COMSEC policy
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Set up COMSEC equipment and use OTAR and OTAT procedures • Transmit and receive cryptographic keying material via OTAT/OTAR • Set up, verify, and operate STU III terminals • Receipt, inventory, and destruction of COMSEC material and equipment • Two-person integrity • Usage of all crypto devices (equipment) and their associated devices • Destruction of cryptographic keying material (CKM) • Update communications security (COMSEC) keying material

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> • Communications Instructions – Security (ACP 122) • Communications Security Material System (CMS) Policy and Procedures Manual (CMS 1) • Communications Security Material System (CMS) Cryptographic Equipment Information/Guidance Manual (CMS 5) • Secure Telephone Unit Third Generation (STU III) COMSEC Material Management Manual (CMS 6) • Cryptographic Operators Manual (NSGTP 683-07-44-92) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: setting up COMSEC equipment and the uses of OTAR and OTAT procedures; transmitting and receiving cryptographic keying material via OTAT/OTAR, setting up, verifying, and operating STU III terminals; receipt, inventory, and destruction of COMSEC material and equipment; two-person integrity; usage of all crypto devices (equipment) and their associated devices; administrative procedures, AL codes; forms; administration change of command; and emergency destruction procedures</p>

Advancement Handbook for IT3

General IT <i>Skill Area</i>	SATELLITE COMMUNICATIONS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform satellite communications procedures and operate associated equipment
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Shore and afloat equipment use with satellite communications • Circuits related to SATCOM (e.g., CUDIXS, TACINTEL, SSIXS, TADIXS, etc.) • UPLINK and DOWN LINK • Satellite communications terminals • Calculate azimuth and elevation of satellite equipment • Set up and use SATCOM equipment, to include: antennas, converters, modems, receivers, transmitters, and multiplexers, • Perform primary and casualty power restoration • Plot positions for antenna assignments • Maintain communications using orderwire circuits • Test equipment • Associated crypto equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communications Security Material System (CMS) Cryptographic Equipment Information/Guidance Manual (CMS 5) • Cryptographic Operators Manual (NSGTP 683-07-44-92) • Navy Satellite Communications Overview: Defense Satellite Communications System (DSCS) (NTP 2 SEC I) • Navy Satellite Operations- Satellite Communications (UHF SATCOM) Standard Operating Procedures (NTP 2 SEC II) •

	<ul style="list-style-type: none"> • Navy Ultra High Frequency SATCOM (NTP 2 SEC II, ANNEX D & H) • EHF SATCOM (NTP 2 SEC III-1) • Shipboard Antenna Systems – Volume 4 (NAVSEA 0967-LP-177-3040) • Technical Manual for Fleet Multichannel Broadcast System Receive Subsystem (NAVSHIPS E2081-BC-OMI-020) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: shore and afloat equipment use with satellite communications; circuits related to SATCOM (e.g., CUDIXS, TACINTEL, SSIXS, TADIXS, etc.); UPLINK and DOWN LINK; satellite communications terminal; calculating azimuth and elevation: usage of SATCOM equipment, to include antennas, converters, modems, receivers, transmitters, and multiplexers; primary and casualty power restoration; plotting positions for antenna assignments; communications using orderwire circuits; test equipment, and associated crypto equipment</p>

Advancement Handbook for IT3

General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Controlling and verifying access to restricted areas; handling of classified material, including destruction of classified material.
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Validate customer authorization to access files • Verify message recipient's identification and security clearances. • Safeguard classified material • Tempest requirements • Control access to restricted areas • Change safe and cipher combinations • Destruction of material classified Top Secret and below • Sanitize site and equipment • Conduct classified material inventories • Set up communications security COMSEC equipment • Receive, inventory, and destroy classified material • Declassify classified hardware • Store communications security (COMSEC) keying material

<p><i>References</i> you should study to gain the knowledge you need to perform this skill:</p>	<ul style="list-style-type: none"> • Communications Instructions Security (ACP 122) • Communications Security Material System (CMS) Policy and Procedures Manual (CMS 1) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Department of Navy Personnel Security Program (SECNAVINST 5510.30A)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: validating customer authorization to access files; verifying message recipient's identification and security clearances; safeguarding classified material; Tempest requirements; access to restricted areas; changing safe and cipher combinations, destruction of classified material Top Secret and below; sanitizing site and equipment; conducting classified material inventories; setting up communications security (COMSEC) equipment; receiving, inventorying, and destroying classified material; and emergency destruction</p>

Part 2

Advancement Handbook for IT2

Advancement Handbook for IT2

General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Manage a Media Library
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Update media library procedures • Establish media library history files • Audit media library listings • Prepare procedures and parameters for initialization of storage media
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about updating media library procedures, establishing history files, auditing listings, and preparing procedures and parameters for initialization of storage media

Advancement Handbook for IT2

General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform network administration procedures
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Install and test network software • Change network system software configurations • Correct program errors • Configure network components • Perform network administrator functions
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, areas covering "Configuration Management," and "Software Installation, Setup, and Configuration"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on changing software configuration and setting up parameters

Advancement Handbook for IT2

General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot remote communications
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Test modems • Determine communications protocols
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Upgrading and Repairing PC's, areas covering "Communications," "Protocols," "Troubleshooting," and "Modems and Diagnostics"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on testing and troubleshooting modems, to include determining protocols for modem communications

Advancement Handbook for IT2

General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform network operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Troubleshoot network malfunctions • Perform network system restorations
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, areas covering "Troubleshooting and backups and restorations" • Upgrading and Repairing PC's, area covering "Data Backup"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on how to troubleshoot network malfunctions and procedures for backing up and restoring the network

Advancement Handbook for IT2

General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform system console operations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Prepare run schedules • Resolve problems in run schedules • Input and manipulate computer system data
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on preparing run schedules and resolving problems with schedules

Advancement Handbook for IT2

General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Troubleshoot hardware malfunctions
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Perform low level format on hard drives
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Upgrading and Repairing PC's, areas covering "Formatting" and "Hard Drives"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on formatting hard drives

Advancement Handbook for IT2

General IT <i>Skill Area</i>	TECHNICAL ADMINISTRATION
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform technical administration
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Design networks • Review trouble reports
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, area covering "Network Planning" • Radioman Training Series, Module 3
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on designing networks and reviewing trouble reports

Advancement Handbook for IT2

General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Provide and control access to classified material
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Issue and update on-line user and identification and passwords • Clear media and hardware • Declassify and/or destroy classified hardware • Complete and verify destruction records (Secret and below) • Receive, inspect, and handle material classified SPECAT or Top Secret and above
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • SECNAVINST 5239.3 • SECNAVINST 5510.36 • DOD Password Management Guidelines, Green (CSC-STD-002-85)
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions concerning password management, declassification and destruction of hardware, and handling of classified material

Advancement Handbook for IT2

General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer AIS program
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Update AIS equipment inventory
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • SECNAVINST 5239.3 • SECNAVINST 5510.36
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on how to conduct, document, and update AIS equipment inventories

Advancement Handbook for IT2

General IT <i>Skill Area</i>	COMMUNICATION
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform Administrative Duties
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Maintain NWPLS • Verify Commands Guard List • Track SITREPS, MOVEREPS, and identify communications requirements • Draft and verify all messages, e.g., service messages, tracers, etc. • Types of logs, files and directives • General Messages and their usage • Minimize • Communications Shifts • Annexes of the OPORDERS • Proper use of operating signals and prowords • Communications organization • Publications and their contents • Prepare communications plan • 3M
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Allied Call Sign and Address Group System (ACP 100) • Communications Instructions - General (ACP 121 and ACP 121 SUPP-1) • Communication Instructions - Operating Signals (ACP 131 and ACP 131 SUPP-1) • Automatic Digital Network (AUTODIN) Operating Procedures (JANAP 128) • The Naval Warfare Publication System (NWP 0 / NWP 1-01) • Basic Operation Communications Doctrine (NWP 4 / NWP 6-01)

	<ul style="list-style-type: none"> • Operational Report (NWP 10-1-10 / NWP 1-03.1) • Battle Group Communications (NWP 10-1-50 / NWP 6-01.1) • Ships Maintenance and Material Management (3-M) Manual (OPNAVINST 4790.4) • Radioman Training Series Modules 4 and 5
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: publications corrections and maintaining an NWPL library; verifying command's Guard List; SITREPS, MOVEREPS, OPORDERS, tracers, service messages, and termination requests; proper message format for preformatted messages; retaining messages in proper file; directives that govern communications; and types of general messages. Questions will also be asked about DEFCON conditions; portions of an OPORDER; types of messages that use OPSIG and PROWORDS; subsystems in the Defense Communications system; flag being embarked on ships; functional components; content of publications; quality control maintenance; message processing; and harmful interference messages</p>

Advancement Handbook for IT2

General IT <i>Skill Area</i>	FLEET COMMUNICATIONS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Operate SATCOM, Broadcast and test equipment, antenna system, crypto equipment and equipment associated with the different subsystems and automatic systems
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Supervise and instruct use of all communications equipment, e.g., modems, receivers, transceivers, transmitters • Ship to shore communications • OTAR/OTAT procedures • Fleet Communications Check Off List • Call signs • Equipment used for full period terminations • SATCOM communications equipment and antennas • Acronyms and terminology • Watchbill • Battle Group communications
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Telecommunications Glossary of Telecommunications Terms (FEDSTD 1037) • Strike Warfare (STW), Autisurface Ship Warfare (ASU) Intelligence (INT) Electronic Warfare (EW) and Command Control (FXP 3) • Communications Security Material Systems (CMS) Cryptographic Equipment Information/Guidance Manual (CMS 5) • Planned Maintenance System Communications System Test Guide (NAVELEX 0967-LP-642-6010) • Shipboard Antenna Systems, Volume 4 (NAVSEA 0967-LP-177-3040) • Technical Manual for Fleet Multichannel

	<p>Broadcast System Receive, Subsystem (NAVSHIPS E2081-BC-OMI-020)</p> <ul style="list-style-type: none"> • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • The Naval Warfare Publication System (NWP 0 / NWP 1-01) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Procedures Manual for Over-the-Air Transfer (OTAT) and Over-the-Air Rekey (OTAR) (NAG 16) • Navy Satellite communications Overview: Defense Satellite Communications System (DCSC) (NTP 2 SEC 1, NTP 2 SEC II, NTP 2 SEC III-1) • Radioman Training Series Modules 4 and 5
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the following areas: international frequencies for distress communications; publications required for proper operation of a termination; frequency range; Autodin systems; crypto equipment and its usage; and proper use of VLF/UHF/SHF/HF/EHF</p>

Advancement Handbook for IT2

General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Practice security procedures regarding: CMS, access to classified spaces, classifications, emergency destruction, physical security, compromises, Tempest, and secure communications.
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Conduct destruction • Inventory classified material; and destroy classified material • Verify destruction records, complete destruction reports and submit required report to CMS custodian • Receive, inspect and handle SPECAT or Top Secret and above • Tempest survey • Crypto, emission, physical and transmission security • Categories of incidents; cryptographic, personnel, and physical • Responsibility of a Local Holder • Accountability legend codes • Reports and documentation
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communications Instructions – Security (ACP 122) • Communications Security Material System (CMS) Policy and Procedures Manual (CMS 1) • Communications Security Material System (CMS) Cryptographic Equipment Information/Guidance Manual (CMS 5) • Secure Telephone Unit Third Generation (STU III) COMSEC Material Management Manual (CMS 6) • Cryptographic Operators Manual (NSGTP 683-07-44-92)

	<ul style="list-style-type: none"> • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Department of the Navy Personnel Security Program (SECNAVINST 5510.30A)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the following areas: emergency destruction; operational responsibilities; administration of the CMS program; accountability legend codes; destruction; inventory; transmission; physical, crypto, and emission security; security classifications; loss of security; Tempest requirements, and security areas</p>

Part 3

Advancement Handbook for IT1

Advancement Handbook for IT1

General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Install Networking hardware
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Install routers• Install bridges• Install hubs• Install repeaters• Install gateways• Install cables and connections
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Novell's Complete Encyclopedia of Networking, areas covering "Network Tools," "Hubs," "Gateways," "Repeaters," "Routers," and "Bridges"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on installing, configuring, and testing network hardware

Advancement Handbook for IT1

General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Determine system requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Determine I/O requirements• Determine memory requirements• Determine storage requirements• Determine communications requirements
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Novell's Complete Encyclopedia of Networking, areas covering system requirements
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on determining memory, storage, and I/O and communications requirements for system setups

Advancement Handbook for IT1

General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Coordinate system availability
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Coordinate computer downtime with users • Coordinate computer maintenance time with technicians and users • Coordinate computer backups with users • Coordinate trouble calls with users
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on coordinating computer maintenance, downtime, backups, and restores

Advancement Handbook for IT1

General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Enhance network performance
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Modify network parameters for increased network performance • Analyze system performance reports • Implement and monitor changes derived from system performance analysis reports • Set network software parameters
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, areas covering "Performance Management"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on modifying parameters for increasing network performance and how to analyze reports so that you can enhance system performance

Advancement Handbook for IT1

General IT <i>Skill Area</i>	TECHNICAL ADMINISTRATION
A <i>skill</i> you are expected to perform from the General Skill Area above:	Perform network configuration changes
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Analyze display of existing network port configuration • Analyze configuration of a network
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, areas covering "Configurations"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on analyzing network configurations

Advancement Handbook for IT1

General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Administer AIS security program
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Implement AIS security countermeasures and contingency plans• Update AIS security plans
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• SECNAVINST 5239.3• SECNAVINST 5510.36
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on implementing and updating the AIS security plans

Advancement Handbook for IT1

General IT <i>Skill Area</i>	ANALYSIS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Determine data base requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none">• Analyze database requirements• Review database structures• Identify database problems• Change database structures
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none">• Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on how to determine database requirements

Advancement Handbook for IT1

General IT <i>Skill Area</i>	ANALYSIS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Determine computer program requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Analyze existing computer program resources • Analyze and update computer program requirements •
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Radioman Training Series, Module 2
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on determining computer program requirements

Advancement Handbook for IT1

General IT Skill Area	COMMUNICATIONS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Direct and supervise communications in accordance with the communications plan
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Direct and use communications assets • Prepare message center access list • Review and direct updating of message center data bases • Coordinate restoration of communication systems • Antenna theory and types • Automatic systems • Communications concepts • Frequency management • Test equipment
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communications Instruction – General (ACP 121 and ACP 121 SUPP1) • Telecommunications Users Manual (NTP 3) • Planned Maintenance System Communications System Test Guide (NAVELEX 0967-LP-642-6010) • The Naval Warfare Publication System (NWP 0 / NWP 1-01) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Radioman Training Series Modules 4 and 5 • Shipboard Antenna Systems – Volume 4 (NAVSEA 0967-LP-177-3040A) • Technical Manual for Fleet Multichannel Broadcast System Receive Subsystem (NAVSHIPS E2081-BC-OMI-020) • Introduction to Wave Propagation, Transmission Lines, and Antennas (NEETS Module 10)

	<ul style="list-style-type: none"> • Radio Frequency Communications Principles (NEETS Module 17) • Introduction to Fiber Optics (NEETS Module 24) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly</p>	<p>You can expect questions on the following areas: earth reflection; lengths of antennas; antenna operations; Autodin, CUDIXS, DDN, MARCEMP, NOW, NST and SSIXS; communications interfaces; and test equipment</p>

Advancement Handbook for IT1

General IT <i>Skill Area</i>	SECURITY, CMS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Supervise communications security and CMS programs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Receive, issue, handle, inventory, and destroy COMSEC material • Administrative responsibility of the CMS custodian • Destroy material classified SPECAT or Top Secret and above • Verify destruction of material classified SPECAT or Top Secret and above • Submit required communications security material system (CMS) reports • Implement security countermeasures and contingency plans • Prepare security procedures checklists • Prepare and update applicable portions of emergency action plans (EAPs)
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communications Instructions – Security (ACP 122) • Communications Security Material System (CMS) Policy and Procedures Manual (CMS 1) • Communications Security Material System (CMS) Cryptographic Equipment Information/Guidance Manual (CMS 5) • Secure Telephone Unit Third Generation (STU III) COMSEC Material Management Manual (CMS 6) • Cryptographic Operators Manual (NSGTP 683-07-44-92) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4)

	<ul style="list-style-type: none"> • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Department of the Navy Personnel Security Program (SECNAVINST 5510.30A)
<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: CMS administration, CMS destruction, CMS security, Local Holder, CMS material, CMS reports, security management, emergency destruction, physical security, and Tempest</p>

Advancement Handbook for IT1

General IT <i>Skill Area</i>	ADMINISTRATIVE
A <i>skill</i> you are expected to perform from the General Skill Area above:	Use publications, maintain files and directives, and prepare reports, TSO and TSR
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Use of commercial traffic • Communication plans and documents • Communication shifts • Required files and directives • Minimize • Administrative organizations • Message Processing • Publications content • Required reports
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communications Instructions - General (ACP 121 and ACP 121 SUPP-1) • Communications Instructions Operating Signals (ACP 131 and ACP 131 SUPP-1) • Automatic Digital Network (AUTODIN) Operating Procedures (JANAP 128) • The Naval Warfare Publication System (NWP 1-01 / NWP 0) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Operational Report (NWP10-1-10/ NWP 1-03.1) • Battle Group Communications (NWP 10-1-50/NWP 6-01.1) • Ships Maintenance and Material Management (3-M) Manual OPNAVINST 4790.4 • Standard Organization and Regulations of the U. S. Navy (OPNAVINST 3120.32) • Radioman Training Series Modules 4 and 5

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions about the following areas: commercial traffic; communication plans and documents; communication shifts; required files and directives; Minimize; administrative organizations; message processing; publications content; and required reports</p>
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Part 4

Advancement Handbook for ITC

Advancement Handbook for ITC

General IT <i>Skill Area</i>	SYSTEMS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor network efficiency
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Analyze network capacity and reliability • Test network software • Test and evaluate network connections
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, areas covering "Local Area Networks," "Networks," and "Network Tools"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on testing network software and connections, to include installing, removing, upgrading and diagnostics; evaluating, upgrading; and implementing changes to resource capacity; and reliability of network capabilities

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General IT <i>Skill Area</i>	APPLICATIONS MANAGEMENT
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor system resources
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Establish and maintain system resource limits
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, areas covering "Network Resources"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on managing resources, such as networking hardware, devices, networking software, auxiliary software, and other miscellaneous areas, such as processes, security, data structures, users, and volumes

Advancement Handbook for ITC

General IT <i>Skill Area</i>	TECHNICAL ADMINISTRATION
A <i>skill</i> you are expected to perform from the General Skill Area above:	Determine system growth requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Project future application growth capabilities • Prepare and implement application and system program changes
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • SECNAVINST 5231.1C
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions relating to the acquisition, development, and operation of information resources

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General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Monitor network audit logs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Control access to certain files and directories • Control upload privileges • Monitor use of passwords and user id's • Allow privileges based on status and need • Use of various verification utilities • Report and record efforts to access system by unauthorized users
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Novell's Complete Encyclopedia of Networking, areas covering "Security"
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions regarding system access, user authorization and validation, passwords, and recording and reporting procedures for violations

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General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Handling AIS computer security incidents and violations
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> Investigate, document and report AIS computer security incidents and violations
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> OPNAVINST 5239.1A
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on investigating, documenting, and reporting AIS computer security incidents and violations

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General IT <i>Skill Area</i>	SECURITY
A <i>skill</i> you are expected to perform from the General Skill Area above:	Develop, conduct, and evaluate an Activity ADP Security Plan (AADPSP)
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Develop Activity AIS Security Plan • Develop risk analysis • Develop contingency plans • Develop Security Test and Evaluation (ST&E) • Conduct AIS security training
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • OPNAVINST 5239.1A
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions on developing, implementing, and testing all phases of the Activity ADP Security Plan (AADPSP), to include training

Advancement Handbook for ITC

General IT <i>Skill Area</i>	SECURITY, CMS
A <i>skill</i> you are expected to perform from the General Skill Area above:	Manage security, CMS, and STU III programs
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • Manage communications assets • Conduct CMS inspections • Develop EAP program • Investigate and document security and CMS violations
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Communications Instructions – Security (ACP 122) • Communications Security Material System (CMS) Policy and Procedures Manual (CMS 1) • Communications Security Material System (CMS) Cryptographic Equipment Information/Guidance Manual (CMS 5) • Secure Telephone Unit Third Generation (STU III) COMSEC Material Management Manual (CMS 6) • Cryptographic Operators Manual (NSGTP 683-07-44-92) • Telecommunications Users Manual (NTP 3) • Fleet Communications (NTP 4) • Basic Operational Communications Doctrine (NWP 4 / NWP 6-01) • Department of the Navy Personnel Security Program (SECNAV 5510.30A)

<p><i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:</p>	<p>You can expect questions on the following areas: CMS admin organization; publication contents, management of CMS account, CMS access, duties and of the CMS custodian, CMS crypto equipment, CMS material, storage requirements, emergency destruction, physical security; admin logs, Tempest requirements, STU III information</p>
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Advancement Handbook for ITC

General IT <i>Skill Area</i>	TECHNICAL ADMINISTRATION
A <i>skill</i> you are expected to perform from the General Skill Area above:	Manage and determine telecommunications protocol as required; Test and evaluate equipment, and determine crypto and installation requirements
<i>Knowledge</i> you should have to perform this skill:	<ul style="list-style-type: none"> • SHF communications and associated equipment • EHF communications and associated equipment SATCOM communication and associated equipment • Orbits • Frequency management • Fleet communications • Communications equipment • Equipment operations • Telecommunications Service Requests • Telecommunications Service Orders
<i>References</i> you should study to gain the knowledge you need to perform this skill:	<ul style="list-style-type: none"> • Submission of Telecommunications Service Requests (DISA 310-130-1) • Spectrum Management Manual (NTP 6) • Jane's Military Communications
<i>Exam Expectations.</i> These are subject areas you should know to help you answer exam questions correctly:	You can expect questions about the following areas: SHF, EHF, and SATCOM communication and associated equipment; type of orbits; frequency management; Fleet communications; communications equipment and operations; and TSO and TSR preparation

Appendix 1

References Used in This Advancement Handbook

Short Title	Long Title	Stocking Point
	PC's For Dummies	NOTE 7
	Upgrading and Repairing PC's	NOTE 7
	Novell's Complete Encyclopedia of Networking	NOTE 7
	Inside UNIX	NOTE 7
	Jane's Military Communications	NOTE 14
ACP 100	Allied Call Sign and Address Group System – Instructions and Assignments	NOTES 4 & 10
ACP 121 / US SUPP-1	Communications Instructions – General	NOTES 4 & 10
ACP 122	Communications Instructions – Security	NOTES 4 & 10
ACP 125	Communications Instructions – Radiotelephone Procedures	NOTES 4 & 10
ACP 126	Communications Instructions – Teletypewriter (Teleprinter) Procedures	NOTES 4 & 10
ACP 127 / ACP 127 SUPP-1	Communications Instructions – Tape Relay Procedures	NOTES 4 & 10
ACP 131 / ACP 131 SUPP-1	Communications Instructions – Operating Signals	NOTES 4 & 10
ACP 135	Communications Instructions – Distress and Rescue Procedures	NOTES 4 & 10
CMS 1	Communications Security Material System (CMS 1) Policy and Procedures Manual	NOTE 12
CMS 5	Communications Security Material System (CMS) Cryptographic Equipment Information/Guidance Manual	NOTE 12
CMS 6	Secure Telephone Unit Third Generation (STU-III) COMSEC Material Management Manual	NOTE 12
CSC-STD-002-85	Department of Defense Password Management Guidelines, Green	NOTE 9
DISA 310-130-1	Submission of Telecommunications Service Request	NOTE 11
FED STD 1037	Telecommunications: Glossary of Telecommunications Terms	NOTE 2

FXP 3	Strike Warfare (STW), Antisurface Ship Warfare (ASU), Intelligence (INT), Electronic Warfare (EW) and Command, Control	NOTE 8
JANAP 128	Automatic Digital Network (AUTODIN) Operating Procedures	NOTES 4 & 10
NAG 16	Procedures Manual for Over-the-Air Transfer (OTAT) and Over-the-Air Rekey (OTAR)	NOTE 13
NAVELEX 0967-LP-642-6010	Planned Maintenance System Communications Test Guide (COMSTG)	NOTE 1
NAVSEA 0967-LP-177-3040	Shipboard Antenna Systems –Volume 4	NOTE 1
NAVSHIPS E2081-BC-OMI-020	Technical Manual for Fleet Multichannel Broadcast System Receive Subsystem	NOTE 1
NEETS Module 10	Introduction to Wave Propagation, Transmission Lines, and Antennas	NOTE 1
NEETS Module 16	Introduction to Test Equipment	NOTE 1
NEETS Module 17	Radio-Frequency Communications Principles	NOTE 1
NEETS Module 22	Introduction to Digital Computers	NOTE 1
NEETS Module 24	Introduction to Fiber Optics	NOTE 1
NSGTP 683-07-44-92	Cryptographic Operators Manual	NOTE 5
NTP 2 SEC I	Navy Satellite Communications Overview: Naval SHF SATCOM	NOTE 6
NTP 2 SEC II	Navy Satellite Operations – Satellite Communications (UHF SATCOM) (Standard Operating Procedures)	NOTE 6
NTP 2 SEC II ANX D & H	Navy Ultra High Frequency SATCOM	NOTE 6
NTP 2 SEC III-1 EHFSAT	EHF SATCOMM	NOTE 6
NTP 3	Telecommunications User Manual	NOTE 6
NTP 3 SUPP-1	U.S. Navy Address Indicating Group (AIG) and Collective Address Designator (CAD) Handbook	NOTE 6
NTP 4	Fleet Communications	NOTE 6
NTP 6	Spectrum Management Manual	NOTE 6
NWP 0 / NWP 1-01	Naval Warfare Publications System	NOTES 4 & 8
NWP 10-1-10 / NWP 1-03.1	Operational Reports	NOTES 4 & 8
NWP 10-1-50 / NWP 6-01-1	Battle Group Communications	NOTES 4 & 8

NWP 11 / NWP 5-01	Naval Operational Planning	NOTES 4 & 8
NWP 4 / NWP 6-01	Basic Operational Communications Doctrine	NOTES 4 & 8
OPNAVINST 4790.4	Ship Maintenance and Material management (3-M) Manual	NOTE 3
OPNAVINST 5100.19	Navy Occupational Safety and Health (NAVHOSP) Program Manual for Forces Afloat	NOTE 3
OPNAVINST 5239.1	Department of the Navy Automatic Data Processing Security Program Instruction	NOTE 3
SECNAVINST 5510.30A	Department of the Navy Personnel Security Program Regulation	NOTE 3
SECNAVINST 5510.36	Department of the Navy Information Security Program Regulation	NOTE 3
Radioman Training Module 1	Administrations and Security: NAVEDTRA 12845	NOTE 1
Radioman Training Module 2	Computer Systems NAVEDTRA 12846	NOTE 1
Radioman Training Module 3	Network Communications NAVEDTRA 12847	NOTE 1
Radioman Training Module 4	Communications Hardware NAVEDTRA 12848	NOTE 1
Radioman Training Module 5	Communications Center Operations NAVEDTRA 12849	NOTE 1
SECNAVINST 5239.3	Department of the Navy Automated Information Systems (AIS) Security, SECNAVINST 5239.3	NOTE 3

LEGEND:

Note 1 – To Order, MILSTRIP to NAVICP PHILA (Stock Number from NAVSUP P2002) or via INTERNET <http://www.nll.navsup.navy.mil>

Note 2 – DOD Index of Specifications and Standards Part II (Use DD Form 1425) or via INTERNET <http://dadssp.daps.mil>

Note 3 – Via INTERNET <http://neds.nebt.daps.mil>

Note 4 – To order obtain Stk. No. from NAVSUP P2002, then MILSTRIP to NAVICP PHILA or (if unclass) via INTERNET <http://www.nll.navsup.navy.mil> or see your command NWP Custodian

Note 5 – Ltr request to: Commanding Officer
 NETPDTC N316
 6490 Sauflay Field Road
 Pensacola FL 32509-5238

Note 6 – Download from COMNAVCOMTELCOM's Bulletin Board Service (BBS); ALCOM 010/96 refers. If document is classified, MILSTRIP to NAVICP PHILA (Stock Number from NAVSUP P2002)

Note 7 – Commercial Purchase

Note 8 – NTIC Series B1 CD-ROM's (See your command NWP Custodian)

Note 9 – INTERNET <http://infosec.nosc.mil/TEXT/DOCUMENTS/other-doc.html#ncsc>

Note 10 – See your command NWP Custodian.

Note 11 – INTERNET <http://www.disa.mil/>

Note 12 – Director
 COMSEC Material System
 3801 Nebraska Ave NW
 Washington, D.C. 20393-5453

Note 13 – Department of the Navy
 Space and Naval Warfare Systems Command
 Washington, D.C. 20363-5111

Note 14 – See your command library

